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ES, FI, FR, GB, GR, HU, IE, IT, LU, MC, NL, PT, RO,
SE, SI, SK, TR), OAPI patent (BF, BJ, CF, CG, CI, CM,
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For two-letter codes and other abbreviations, refer to the "Guid-
ance Notes on Codes and Abbreviations" appearing at the begin-
ning of each regular issue of the PCT Gazette.

(54) Title: FRAGMENTS AND ACTIVITY OF REL PROTEIN IN M. TUBERCULOSIS ADN OTHER USES THEREOF

(57) Abstract: The present invention relates to mycobacteria. The present invention further relates to *M. tuberculosis*. The present invention further relates to the Rel_{Mtb}. The present invention also relates to identifying new antibacterial targets and agents to inhibit mycobacterial growth. The present invention also relates to polynucleotides of Rel_{Mtb}, Polypeptides of Rel_{Mtb}, and antibodies that bind Rel_{Mtb} and methods of using the same.

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WO 2004/037997 A3

INTERNATIONAL SEARCH REPORT

International application No.

PCT/US03/33692

A. CLASSIFICATION OF SUBJECT MATTER

IPC(7) : A61K 49/00, 39/395, 39/40, 39/02, 39/04; C12Q 1/00; C07H 21/02

US CL : 424;9.1,9.2,130.1,139.1,168.1,234.1,248.1; 435/4, 7.1, 26; 530/300, 350; 536/23.1, 23.7

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

U.S. : 424;9.1,9.2,130.1,139.1,168.1,234.1,248.1; 435/4, 7.1, 26; 530/300, 350; 536/23.1, 23.7

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)
BIOSIS CABA, CAPLUS, EMPASE, JAPIO, LIFESCI, MEDLINE, SCISEARCH, USPATFULL**C. DOCUMENTS CONSIDERED TO BE RELEVANT**

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
Y	AVARBOCK, D.O. et al. Differential regulation of opposing RELmb activities by the aminoacylation state of a tRNA-ribosome-mRNA-Relmb complex. Biochemistry. September 2000, Vol. 39, No. 38, pages 11640-11648. entire reference	1-8,33-38, 85-101
Y	PRIMM, T.P. et al. The stringent response of Mycobacterium tuberculosis is required for long-term survival. Journal of Bacteriology. September 2000, Vol. 182, No. 17, pages 4889-4898, entire reference.	1-8,33-38, 85-101
Y	US 5,834,279 A (RUBIN et al.) 10 November 1998, entire reference.	1-8, 33-38, 85-101



Further documents are listed in the continuation of Box C.



See patent family annex.

* Special categories of cited documents:

"A" document defining the general state of the art which is not considered to be of particular relevance

"E" earlier application or patent published on or after the international filing date

"L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)

"O" document referring to an oral disclosure, use, exhibition or other means

"P" document published prior to the international filing date but later than the priority date claimed

"T"

later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention

"X"

document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone

"Y"

document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art

"&"

document member of the same patent family

Date of the actual completion of the international search

29 September 2004 (29.09.2004)

Date of mailing of the international search report

07 OCT 2004

Name and mailing address of the ISA/US

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Commissioner for Patents

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INTERNATIONAL SEARCH REPORT

PCT/US03/33692

BOX II. OBSERVATIONS WHERE UNITY OF INVENTION IS LACKING

This application contains the following inventions or groups of inventions which are not so linked as to form a single general inventive concept under PCT Rule 13.1. In order for all inventions to be examined, the appropriate additional examination fees must be paid.

Group I, claims 1-8, 33-38, and 85-101, drawn to method of altering Rel_{mb} activity and identifying compounds which alter.

Group II, claims 9-24, 39-74, and 102-104, drawn to DNA, transformed hosts and methods of use.

Group III, claims 25-33 and 75-76, 79-81, drawn to polypeptides and methods of use.

Group IV, claims 82-84, drawn to antibodies.

The inventions listed as Groups I-IV do not relate to a single general inventive concept under PCT Rule 13.1 because, under PCT Rule 13.2, they lack the same or corresponding special technical features for the following reasons: each group is drawn to a functionally and structurally special technical feature. The special technical feature of Group I is a compound which alters Rel_{mb} activity, the special technical feature of Group II is nucleic acids, the special technical feature of Group III is polypeptides, and the special technical feature of Group IV is antibodies.

INTERNATIONAL SEARCH REPORT

International application No.

PCT/US03/33692

Box I Observations where certain claims were found unsearchable (Continuation of Item 1 of first sheet)

This international report has not been established in respect of certain claims under Article 17(2)(a) for the following reasons:

1. ☐ Claim Nos.:
because they relate to subject matter not required to be searched by this Authority, namely:
2. ☐ Claim Nos.:
because they relate to parts of the international application that do not comply with the prescribed requirements to such an extent that no meaningful international search can be carried out, specifically:
3. ☒ Claim Nos.: 77-78
because they are dependent claims and are not drafted in accordance with the second and third sentences of Rule 6.4(a).

Box II Observations where unity of invention is lacking (Continuation of Item 2 of first sheet)

This International Searching Authority found multiple inventions in this international application, as follows:
Please See Continuation Sheet

1. ☐ As all required additional search fees were timely paid by the applicant, this international search report covers all searchable claims.
2. ☐ As all searchable claims could be searched without effort justifying an additional fee, this Authority did not invite payment of any additional fee.
3. ☐ As only some of the required additional search fees were timely paid by the applicant, this international search report covers only those claims for which fees were paid, specifically claims Nos.:
4. ☒ No required additional search fees were timely paid by the applicant. Consequently, this international search report is restricted to the invention first mentioned in the claims; it is covered by claims Nos.: 1-8,33-38 and 85-101

Remark on Protest ☐ The additional search fees were accompanied by the applicant's protest.
☐ No protest accompanied the payment of additional search fees.